



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,159	03/17/2004	George Popovich	CM05518H	4139
22917	7590	10/19/2005	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			CHANG, JUNGWON	
			ART UNIT	PAPER NUMBER
			2154	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,159

Applicant(s)

POPOVICH ET AL.

Examiner

Jungwon Chang

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10-15 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-15 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

**FINAL ACTION**

1. This Office Action is responsive to amendment filed on 7/28/2005. Claims 9, 16 and 17 have been deleted. Claims 1-8, 10-15 and 18-22 are presented for examination.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14, 15, 19 and 22 are rejected under 35 U.S.C. 102(b) as being as being anticipated by Jung (2002/0143993).

4. As to claims 14 and 22, Jung discloses the invention as claimed, including a registration method for use in a system (page 1, [0014]) having a hierarchical structure comprising a mobile node (10, figs. 1-4; page 1, [0007]), at least one foreign agent (20, figs. 1-4; page 1, [0008]), at least one gateway foreign agent (40, figs. 1-4; page 1, [0010]) and a home agent (30, figs. 1-4; page 1, [0009]), said method comprising the steps of:

receiving a registration request from a mobile node (figs. 1-2, 4-6), said registration request including a first care of address (IP address) in a care-of address entry of said registration request (203, fig. 2; registration request message transmitted

by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+; page 2, [0016], lines 8-11; page 7, claim 8) and a second care of address (IP address of gateway foreign agent) added as an extension to said registration request (205, fig. 2; gateway foreign agent transmits the registration request message to a home agent along with its address; page 1, [0015], lines 11-14; page 7, claim 8);

allowing said mobile node registration (mobile node is registered in the home agent, the mobile node can exchange data with a host of the IP network; page 1, [0014], lines 35+; [0015]);

creating a registration entry for said mobile node, which includes recoding said first and second care-of address for use in tunneling at least one datagram (packet) to said mobile node (regional tunnel management; page 1, [0001]; page 5, [0053]-[0055]);

sending a registration reply to said mobile node (207-211, fig. 2); and

tunneling at least one datagram to said mobile node using said second care-of address when said second care-of address is available (regional tunnel management; page 1, [0001]; page 5, [0053]-[0055]), and tunneling said at least one datagram to said mobile node using said first care-of address when said second care-of address is unavailable (tunneling between mobile node and foreign agent which the mobile node belongs to; page 6, claims 2-3).

5. As to claims 15 and 16, Jung discloses wherein said first care-of-address is the IP address of a foreign agent (203, fig. 2; registration request message transmitted by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+;

page 2, [0016], lines 8-11), which is included in a care-of address entry of said registration request, and said second care-of address is the IP address of a gateway foreign agent (gateway foreign agent stores an address of the foreign agent and then transmits the registration request message to a home agent along with its address; 205; fig. 2; page 1, [0015], lines 11-14).

6. As to claim 19, Jung discloses receiving a subsequent registration message from said mobile node including a valid care-of address added as an extension to said subsequent registration request (803, fig. 8; page 5, [0053]); and recording said valid care-of address for use in tunneling at least one datagram to said mobile node (805, fig. 8; page 5, [0054]).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung (2002/0143993), in view of Borella (2004/0153525) and Malki et al, "Low latency Handoffs in Mobile IPv4", February 23, 2001, hereinafter Malki.

9. As to claims 1 and 21, they are rejected for the same reasons set forth in claims 14 and 22 above. In addition, Jung discloses intercepting a registration request from a mobile node to its home agent (figs. 1-2, 4-6), said registration request including a first care-of address for said mobile node (201, fig. 2; IP address of a foreign agent; page 2, [0016]);

determining whether there is an existing entry in a visitor list for said mobile node (determining whether there is a foreign agent having information on the mobile node; page 2, [0019], lines 8-32);

adding a second care-of address as an extension to said registration request (IP address of gateway foreign agent) and sending said registration request with said address extension to said home agent (205, fig. 2; gateway foreign agent transmits the registration request message to a home agent along with its address; page 1, [0015], lines 11-14; page 7, claim 8);

sending a registration reply to said mobile node (207-211, fig. 2).

10. Jung does not specifically disclose maintaining in a gateway foreign agent a first and a second lifetime value. Borella discloses a gateway foreign agent (registering with the foreign gateway router; page 1, 0002, 0003), and maintaining lifetime values on a foreign agent (a lifetime timer for the association between the home network address and the care-of-network address, and other types of mobile communication information; page 1, 0006; Table 6; record includes a lifetime timer defining a time interval within

which the FACN 220; page 5, [0050]; page 10, [0083]-[0084]; page 13, [0105]).

Milki discloses a maintaining in a gateway foreign agent a first and a second lifetime value (page 23, 4.6.2. Gateway Foreign Agent Considerations; paragraph 2; GFA should include set the lifetime field; page 12, paragraphs 1-3; registration lifetime with the GFA or HA is about to expire; page 17, paragraph 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Jung, Borella and Milki because Borella and Milki's storing lifetime values would allow the mobile node to aware when the valid period of the registration is over.

11. As to claims 2 and 7, Jung discloses wherein said first care-of-address is the IP address of a foreign agent (203, fig. 2; registration request message transmitted by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+; page 2, [0016], lines 8-11), which is included in a care-of address entry of said registration request, and said second care-of address is the IP address of a gateway foreign agent (gateway foreign agent stores an address of the foreign agent and then transmits the registration request message to a home agent along with its address; 205, fig. 2; page 1, [0015], lines 11-14).

12. As to claim 3, Jung discloses wherein said foreign agent selects said gateway foreign agent, and relays said registration request from said mobile node to said gateway foreign agent (figs. 2-7).

13. As to claim 4, it is rejected for the same reasons set forth in claim 1 above. In addition, Jung discloses wherein said registration reply is sent directly to said mobile node from a gateway foreign agent if said entry exists (509, fig. 5), and said reply is received from said home agent (507, fig. 5) and replayed from the home agent to the mobile node via a gateway foreign (fig. 5; page 5, [0044]).

14. As to claims 5 and 6, Jung does not specifically disclose determining whether a lifetime for said registration request has expired. However, Borella discloses determining whether a lifetime for said registration request has expired (Table 6; page 5, [0050]; page 10, [0083]-[0084]; page 13, [0105]). Milki discloses determining whether a lifetime for said registration request has expired (page 12, paragraphs 1-3; page 22, paragraphs 6-7; page 23, paragraph 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Jung, Borella and Milki because Borella and Milki's determining lifetime values would allow the mobile node to aware when the valid period of the registration is over.

15. As to claim 8, Jung further discloses said mobile node roaming from a first foreign agent to a second foreign agent (mobile node moves from the original foreign agent to another foreign agent; page 2, [0017]), wherein said first care of address is the IP address of said second foreign agent (203, fig. 2; registration request message transmitted by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+; page 2, [0016], lines 8-11; page 7, claim 8).



16. As to claim 18, Jung does not specifically disclose removing said second care-of address from said registration entry if said second care-of address is unavailable.

However, Borella discloses removing said second care-of address from said registration entry if said second care-of address is unavailable (page 7, [0058]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Jung and Borella because Borella's deleting address would allow keep track of mobile communications information (Borella; page 1, [0006]).

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jung (2002/0143993), Borella, Malki, further in view of O'Neill (2003/0223439).

18. As to claim 13, Jung discloses wherein said first care-of address is an IP address (203, fig. 2; registration request message transmitted by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+; page 2, [0016], lines 8-11; page 7, claim 8), and said second care-of address is the IP address of a gateway foreign agent (gateway foreign agent transmits the registration request message to a home agent along with its address; 205; fig. 2; page 1, [0015], lines 11-14; page 7, claim 8). However, Jung, Borella and Malki do not specifically use a word "co-located care-of address". O'Neill discloses said first care-of address is a co-located care-of address (page 1, [0003]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Jung, Borella, Malki and O'Neill because O'Neill's co-located care-of address would allow the mobile node to

enable to connect to external network while in the foreign network.

19. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jung (2002/0143993), in view of O'Neill (2003/0223439).

20. As to claim 13, Jung discloses wherein said first care-of address is an IP address (203, fig. 2; registration request message transmitted by the foreign agent includes an IP address of the foreign agent; page 1, [0014], lines 10+; page 2, [0016], lines 8-11; page 7, claim 8), and said second care-of address is the IP address of a gateway foreign agent (gateway foreign agent transmits the registration request message to a home agent along with its address; 205; fig. 2; page 1, [0015], lines 11-14; page 7, claim 8). However, Jung, does not specifically use a word "co-located care-of address". O'Neill discloses said first care-of address is a co-located care-of address (page 1, [0003]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Jung and O'Neill because O'Neill's co-located care-of address would allow the mobile node to enable to connect to external network while in the foreign network.

21. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

22. Applicant's arguments with respect to claims 1-8, 13-15 and 18-22 have been considered but are moot in view of the new ground(s) of rejection.

23. In the remarks, applicants argued in substance that:

(1) Applicants have amended Claim 14 to include the limitation of recoding the "first and second care-of addresses" and (2) the limitations of "tunneling at least one datagram to said mobile node using said second care-of address when said second care-of address is reachable, and tunneling said at least one datagram to said mobile node using said first care-of address when said second care-of address is unreachable," which applicants submit are not disclosed in Jung.

In reply to argument (1): examiner finds that Jung clearly teaches recoding the first and second care-of addresses (first care-of address: foreign agent address; second care-of address: gateway foreign agent address; TABLE 1; gateway foreign address; foreign address; page 4, 0050; foreign agent stores information on the mobile node; page 1, 0008; an address of the foreign agent 20 to which the mobile node 10 belongs from the registration request message; page 1, 0014; gateway foreign agent 40 stores an address of the foreign agent 20...an address of gateway foreign agent 40; page 2, 0016). Therefore, Jung clearly teaches this limitation of the claims.

In reply to argument (2), examiner finds that Jung clearly teaches tunneling at least one datagram to said mobile node using said second care-of address when said

Art Unit: 2154

second care-of address is reachable, and tunneling said at least one datagram to said mobile node using said first care-of address when said second care-of address is unreachable (if the mobile node moves within the visit network, the location of the mobile node is registered not in the home agent, but in the gateway foreign agent; page 1, 0015; selectively performs the functions of the foreign agent and the gateway foreign agent...if I flag is not set, the GGSN 60 performs only the function of the foreign agent; page 4, 0044, 0051; serving as a foreign agent for storing current location information of the mobile node or serving as a gateway foreign agent for foreign agents existing in a specific region; page 6, claim 7). Therefore, Jung clearly teaches this limitation of the claims.

(3) Applicants have amended claims 1 and 21 to include the limitations of "maintaining in a gateway foreign agent a first and a second lifetime value". The examiner admits that Jung does not teach or suggest these limitations, but argues that Borella teaches maintaining a lifetime value. However, Borella does not teach or suggest a gateway foreign agent maintaining a first and second lifetime value now recited in claims 1 and 21.

In reply to argument (3), Applicant's argument with respect to "a gateway foreign agent maintaining a first and second lifetime value" has been considered but is moot in view of the new ground(s) of rejection. Please see the paragraph 10 above.

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2154

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jungwon Chang whose telephone number is 571-272-3960. The examiner can normally be reached on 9:30-6:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2154

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "JWC". The signature is stylized with a large, sweeping "J" and a cursive "W".

JWC

October 14, 2005